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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,314	06/25/2002	Kurt Frank	R.37363	4534
2119	7590	04/29/2004	EXAMINER	
RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			MILLER, CARL STUART	
			ART UNIT	PAPER NUMBER
			3747	8
DATE MAILED: 04/29/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/070,314

**Applicant(s)**

FRANK, KURT

**Examiner**

Carl S. Miller

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 10 and 11 is/are allowed.  
6) ☒ Claim(s) 6-9 and 12-13 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-9 are rejected under 35 U.S.C.103 (a) as being unpatentable over Cavanaugh in view of Rao ('919). Cavanaugh teaches a pump piston used to feed a common rail fuel system and having circumferential lubrication grooves in the piston.

Rao teaches that it was known to use lubrication grooves in a piston as small as 5 microns in order to hold lubricant for lubricating the piston within its chamber.

Applicant's limitations of a micron range has not been rejected as vague (under 35 USC 112, second paragraph) but merely broad and thus the disclosure of 5 microns in Rao teaches his range and would have been made obvious the claimed depth for the channels of Cavanaugh.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rao and Cavanaugh as applied to claims 6-7 above, and further in view of Guernert (DE ('044)).

Guernert (Figure 2) teaches the channels of these claims and, because they are also used to carry lubricant for a fuel pump, they would have been obvious to use in Cavanaugh.

Claims 10 and 11 are allowed.

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Applicant's arguments filed February 5, 2004 have been fully considered but they are not persuasive. In particular, all of applicant's arguments revolve around the fact that he feels Rao cannot teach a micron range for the depth of the Cavanaugh lubrication groove. Cavanaugh, of course, is silent concerning the depth of his lubrication grooves, but there can be no doubt that whatever the depth of the Cavanaugh groove it must be sufficient to retain lubricant, which will act to lubricate the piston chamber during reciprocation of the pump piston. Applicant notes that Rao is a piston lubricated by fuel and not by oil, as is the Rao piston. Cavanaugh, however, is not a gasoline fuel pump but a diesel fuel pump. Diesel fuel, commonly known as fuel oil, does have a viscosity very similar to that of lubricating oil and, in fact, most hydraulically driven diesel systems today use either the fuel oil or the lubricating oil as the actuating fluid to drive the injection pump.

Further, applicant does not deny the term micron range is a very broad term. The pockets used in Rao are identified as ranging from 5-30 microns. Grooves are also noted as possible, ranging in depth from 30-60 microns. Whatever method is used to hold the lubricant, it is clear that everything is being measured in a micron range.

Applicant points out that Rao teaches a coating which helps to attract the oil. Clearly, however, Cavanaugh's grooves can hold such oil even without any special coating. Applicant states that the piston of Rao is larger than the piston of Cavanaugh. All this means is that a circumferential groove would need a larger circumference.

Finally, applicant notes that a prima facie case of obviousness requires at least "knowledge generally available to one of ordinary skill in the art that would lead that

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individual to combine the **relevant teachings** of the references". Emphasis has been added to the "relevant teachings" since the relevant teachings of Rao are merely the very broad depth required for a groove on the surface of a reciprocating piston to retain a lubricant of the general viscosity of diesel fuel oil in sufficient quantities to lubricate the pumping piston. Rao teaches such grooves and they are measured in a micron range.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl S. Miller whose telephone number is 703-308-2653. The examiner can normally be reached on MTWTHF.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry YUEN, can be reached at 703-308-1946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Miller/DI

April 19, 2004

  
Carl S. Miller  
Primary Examiner